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Plymouth Breakwater.

An Account of the Breakwater recently constructed over the Shoals that lie at the entrance of Plymouth Sound, rendering what was the most dangerous and exposed Anchorage of England, now one of the most secure in the known World.—By Monsieur Charles Dupin.

(With an Engraving—Plate XXVIII.)

The Roads and the port of Plymouth are, perhaps, the spots where nature has done the most for a naval establishment, and they are, besides, situated at the point most important to the security of Great Britain. Industry, power, and opulence have combined their efforts to add to the local advantages all the improvements of which they were susceptible. On the confines of Devonshire and Cornwall, along a very uneven part of the coast, and within the extent of only three miles, are situated three rich and populous towns: namely—Plymouth, Stone-House, and Plymouth Dock. Two rivers, the Plym and the Tamer, which enlarge at some distance above their outlets, form two vast basins, the Catwater and the Hamoaze; they mingle their waters in front of the three towns above mentioned, in another basin, larger than either the Catwater or the Hamoaze: this is Plymouth Roads, usually called the Sound.

The commercial establishments and the town of Plymouth are situated on the right bank of the Plym, close to the Catwater. The naval and ordnance establishments, together with the town of Plymouth Dock, lie, on the contrary, on the left bank of the Tamer, beside the Hamoaze. The two towns are insensibly united by the enlargement of a third, called Stone-House, which extends along an intermediate valley: these three towns contain altogether upwards of sixty thousand inhabitants. Plymouth and Stone-House are not surrounded by fortifications; they are defended on the sea-coast by a citadel erected on a promontory. The guns of this citadel cross those of an island, which nature seems to have placed at the entrance of the Hamoaze, to render still more secure the anchorage of vessels in that immense inward port:—this is called St. Nicholas' Island. It is pleasing to observe, that national gratitude has given to this island also the name of the illustrious Drake, who, in time of peace departed to discover unknown regions, and to share the glory of Americus and Columbus;—who, during the war with Spain in the reign of Queen Elizabeth, sailed from Plymouth to defeat the Grand Armada, as Themistocles quitted Athens to capture the fleet of the great king;—and who, when war was at an end, became the father of those whom his genius had led on to victory, by converting under an ingenious arrangement, the scanty but regular savings of brave warriors into means of cheering the old age of the veteran disabled by the scythe of war, and of shielding from want the widow and orphan of the sailor who had perished for his country.—But in addition to these titles, which must ever render the name of Drake venerable to the English people, and dear to all friends of humanity, it possesses a still more direct claim to the gratitude of the inhabitants of the banks of the Plym and the Tamar, Between the Dartmoor Hills and Plymouth, that is to say, along an extent of upwards of twenty miles, there is an aqueduct, which was constructed under the direction of Drake, and the expenses of which he himself defrayed; he afterwards presented this admirable monument of public utility to the corporation of Plymouth. Drake Island separates the entrance of the Hamoaze into two divisions; on the north side its guns cross the fire of those of the citadel, as has already been observed. On the west, they cross the fire of the batteries of Mount Edgecumbe.

Mount Edgecumbe stands on an extensive base: it rises and projects like a promontory, forming the western boundary of Plymouth Roads. Its sides are majestically shaded by some beautiful old plantations, and its summit commands one of the finest prospects England presents. On the east, the spectator beholds, as if beneath his feet, the road and the vessels lying at anchor. The long narrow line, formed by the town of Stone-House, is distinctly marked; in front rise the citadel and insulated barracks of the Royal Marines; and in the rear the magnificent naval and ordnance hospitals. Further to the left, the Hamoaze sends off numerous and deep ramifications from both its banks, as the trunk of a vigorous tree shoots forth its branches in all directions. Along an extent of upwards of four miles, its principal course is filled by vessels, frigates, and smaller ships of war; some entirely dismantled, others rigged, fully equipped, and ready to join any sudden expedition at a moment's warning.

Finally, to crown this magnificent picture, the plains, hills, and high mountains of Devonshire and Cornwall, form, on the east, north, and west, an immense amphitheatre of fields, meadows, heaths, forests, and rocks. The two extremities of this amphitheatre extend gradually to the ocean, the immense surface of which presents no resting point to the eye, except Eddystone light-house.

This remarkable monument is erected on the narrow base of a detached rock, which is twelve miles out at sea, and which rises to an immense height. Nevertheless, when the sea is agitated, the light-house frequently disappears, and is entirely enveloped amidst the thick vapour of the waves which break against its base, and ascend along the inclined surface of the structure. About a century ago, an old light-house stood on the same spot, but it was swept away during the night by a tempest. At day-break nothing was visible but the rock on which the beacon stood. The celebrated Smeaton was then employed to build a new light-house. He was supplied with stone, iron, and work-men; he surpassed himself, and erected a monument which promises to resist the fury of the sea for centuries to come.(a)

Having made the reader in some degree acquainted with the admirable topography of the environs of Plymouth Roads, we may proceed to describe the great work which was wanting to render the Sound one of the securest harbours for the shelter and rendezvous of a fleet.

Plymouth Roads, which are both wide and deep, are surrounded on the east, north, and west, by hills and high mountains; and are thus sheltered against the wind from south-east to north, and from north to south-west. Of the four quarters of the compass, Plymouth Roads are only exposed to the wind on one. But as the latter faces an open sea, which is not broken by any island, the waves rush into the Sound with as much fury as they would dash against an unprotected coast. The extent to which they are engulfed, far from diminishing their force, augments both their magnitude and their power, from the same cause which renders tides stronger in straits and narrow bays, than in open seas, where there is no object to impede their motion.

To render perfectly secure the anchorage of vessels in Plymouth Roads, the English have followed the example which we set before them in constructing the jetée of Cherbourg (b) But they were not

(a) The first light house on the Eddystone rock was erected by Mr. Henry Winstanley, and finished in 1696. He was so confident of the stability of his structure, as to wish to be in it when it stood the test of a violent storm. He, ultimately, was indulged by the gratification of his wishes, but not with a propitious result. On November 26th, 1703, the light-house was blown down during a violent storm, Winstanley himself being amongst those who perished in the catastrophe.

The second light-house, which was constructed of wood, was built in 1709 by John Rudyerd, and was burnt down on December 3d, 1755. The sad accident is rendered memorable by a remarkable circumstance. Henry Hall, one of the light house keepers, an old man of 94 years of age, looking upward from within, to observe the progress of the fire, received into his mouth a quantity of melted lead from the lantern above. He lived 12 days: after his death a piece of lead, weighing 7oz. 5drs. 18grs. was found lodged at the bottom of his stomach! This was then thought so incredible; that fused lead was afterwards poured down the throats of the domestic fowls, to ascertain how long they might survive it. See the Philosophical Transactions, vol. xlix. for the year 1756.

The third light-house on the Eddystone, which is the one now standing, was begun by the celebrated Smeaton, in April, 1757, and finished in August, 1759. This great work exhibits a remarkable union of taste and science: and the history of its progress written by Smeaton himself, furnishes remarkable proofs of that fecundity of expedients with which a man of genius overcomes obstacles insurmountable by all other men.—Ed.

(b) The British coasts exhibit some fine examples of natural Breakwaters. One of the most interesting of these is the beautiful little island of Inch Keith, which tends so pleasingly to enrich the noble picturesque effect of the approach to Edinburgh by sea. This island, by its happy position, enables vessels to ride quietly at anchor in Leith Roads, during winds which would otherwise considerably endanger their safety. And, to mention only one more example of this kind, the small island of Buita, in the north of Shetland, by standing athwart the entrance of Balta Sound in the island of Unst, renders that sound (often resorted to by our Greenland and Archangel vessels) one of the most safe as well as commodious harbours in the British dominions.

Among artificial Breakwaters, M. Dupin would have classed Ramsgate pier and harbour, had he visited that extraordinary work. The harbour is completely

like us, obliged to employ vast sums in experiments. They saved the money which we had expended, to ascertain how far a simple dyke of sunk stone was capable of opposing the fury of the sea, and resisting its most powerful efforts. At the distance of two miles from the bottom of the Bay, a right line was drawn from east to west; (c) this line was prolonged by two other right lines, inclining inwardly, and forming with the principal base, an angle of one hundred and thirty-nine degrees. Such is the plan according to which the outline of the structure has been formed. The total length of this line is four thousand two hundred feet. On the completion of the work, there will be two entrances to the roads, one on the east, not quite half a mile in width; but deep enough for the passage of ships of war, until within a short distance from the shore; the other on the west, above a mile in width, and also presenting, along an extent of two thousand seven hundred feet, sufficient depth for the passage of ships of war. By sounding the roads, according to the line along which the structure has been raised, it was ascertained, that the average depth is thirty-six feet, at low water. In the equinoxes, the difference between the highest tide and the lowest, is eighteen feet; the breakwater is to be raised three feet above this latter limit, which will make its average height fifty-seven feet. Its width is three hundred feet at the foundation, and only thirty at the top: these two surfaces are united by rectilinear inclined planes. The transverse section of the structure is consequently a trapezium; the length of its parallel sides being thirty feet, and three hundred feet. The internal inclined side or plane is one hundred and eighty feet in horizontal length; (d) the external inclined side or plane, ninety feet in horizontal length; consequently, the inclination of the internal, is three times greater than that of the external plane.

In constructing the immense work, of which I have described the dimensions, it was necessary to choose between the white Portland-stone, furnished by a neighbouring coast, the granite which forms the basis of the primitive mountains of Cornwall and Devonshire, and the stone which constitutes the secondary mountains, and which is covered by a light stratum of vegetable earth: the latter was preferred.

The hills of stone, lining the right bank of the mouth of the Plym, (the Calwater) have been cut, and, by the aid of gunpowder, masses are detached weighing ten or twelve tons. These masses are thrown into the sea, without any particular order, but within the lines fixed for the boundaries of the work. The points for depositing the stone, so as to diminish the width, and thereby form the internal and external slopes, are determined by means of sounding. When the work at any part rises high enough to be visible at low water, the largest blocks of stone are employed. They are laid together in such a way, as to produce the greatest possible resistance to any derangement which might be occasioned by the waves of the sea. They are not, however, so combined, as to form a smooth surface externally; on the contrary, they present great irregularities, and thus form a breakwater, in the true sense of the word. The external plane or slope, from the level of low water to the summit, as well as the horizontal part of the summit, have a smooth and uniform surface: but the cones, though smoothed on the external surface, are not squared on the other sides. They are laid one into another; and in form, bulk, and mode of connexion, represent those ancient works celebrated for solidity, and known by the name of *Cyclopean Structures*.

stolen from the sea; not, as at Plymouth, upon a deeply indented line, but upon a straight line of coast. The pier is a complete breakwater, and of a refined construction; and much earlier in its erection than the work at Cherburgh, to which M. Dupin refers. With regard to the breakwater at Cherburgh we are not able to speak accurately as to its present state: but, we fear, that notwithstanding the large sums of money expended upon it during more than 30 years, it still remains incomplete. We learn from M. de Cessart, in his *Description des Travaux Hydrauliques*, that the expense incurred between March, 1763, and January, 1764, exceeded 900,000*l.* sterling, and that was an estimate, in which the extra pay to the troops and seamen employed was not included. The whole sum expended upon the Cherburgh work, there is every reason to believe, is nearly quadruple the amount just specified. During the time M. de Cessart superintended the work, he employed more than 680 artificers to sink the cones he made use of; and for the whole operation of the breakwater, there were simultaneously employed, from 1,200 to 1,500 artificers and labourers, together with about 3,000 soldiers. By way of contrast, we may add the statements of the whole establishment for carrying on the Plymouth Breakwater, viz.

A superintendent, with clerks, &c.	10
Warrant officers and master of the government vessels	21
Seamen and boys to navigate those vessels	90
Seamen in the superintendants' vessels, boats' crews, &c.	45
Masons, blacksmiths, carpenters, &c.	30
Seamen in the contractors' vessels	170
Quarrymen and labourers employed by the contractors	300

In all 673

This is about a sixth of the number employed at Cherburgh; a circumstance with which M. Dupin appears to have been much struck, although he makes no specific comparison in his interesting description.—Ed.

(c) It inclines a few degrees towards the north-west.

(d) That is to say, that the most inclined line, measuring this slope, and projected horizontally, is 180 feet long.

Having enabled the reader to form some idea of the Breakwater, we may now describe the means employed in extracting the stone from the quarries, placing it on board vessels, and disembarking it at the necessary point. These methods are, generally speaking, as simple as ingenious, and are well worthy the attention of the mechanist. The hills, from which the stone is extracted, extend to the bank of the Plym; and a quay is constructed on the bank of the river, to afford conveniences for the loading of several vessels at the same time. The hills are every where covered with strata of vegetable earth, more or less thick. This earth is gradually removed before the stone can be got out. The hills are cut out from the top downwards, by sections nearly vertical.

The vegetable earth which has been removed, together with the small pieces of stone procured in course of the excavation, are piled up, and form an artificial hill, which rises beside those which are gradually disappearing. By means of iron chains, flying bridges are thrown from the summit of the new hill to the summit of the primitive hill; and the workmen, with wheel-barrows and hand-barrows, remove the vegetable earth along these ridges.

There appeared to be nothing peculiar, in the process by which the quarries are worked; only, that it is much more easy, when the stone is found in vertical strata, than when it lies horizontally. It sometimes happens, that in the same hill, there are strata nearly horizontal, contiguous to others nearly vertical; a geological fact, which, though not without example, is nevertheless very remarkable. The largest blocks of stone, which are reserved for the external and upper parts of the work, are extracted from the latter strata. At the foot of each section of the hill, a file of cranes is established, on an extremely simple principle. The feet of these cranes rest on a sole fixed into the earth; and the heads turn in an iron collar provided with rings, to which chains are fastened; these chains, four or five in number, extend some from the top downwards, and have their point of attachment in the ground—and others from the bottom upwards, and have their point of attachment on the summit of the hill. In proportion as the excavation advances, the points of attachment of the chains are altered, and the range of cranes is extended, so that the pieces of stone detached by the gunpowder, and thrown down by the workmen, are always caught by some one of the cranes. They are each moved by means of a double handle, the axis of which has a pinion attached to it; this pinion sets in motion a toothed wheel, which acts upon the pinion attached to the cylinder, round which the chain by which the weight is raised, rolls and unrolls. Two men are sufficient to work each crane: one links together the two ends of the chain round the piece of stone to be raised, and the other turns the handle. As soon as the stone is disengaged from those who surround it, the workman, who fixed it in the chain, pushes it with his hands, and makes the crane on a level with a flat carriage, with four small cast iron wheels, of nearly equal diameter.

The block of stone being deposited on this carriage, the two workmen at the crane proceed to raise another piece of stone, and to place it on another carriage. These little carriages are provided at both ends with two strong iron hooks, for fastening to the traces of a horse, either before or behind, according as it may be found necessary to make the carriage advance or retrograde; for it is not made to turn upon its wheels. The wheels are placed in the grooves of an iron rail-way, prepared for that purpose. These iron rail-ways meet at the different points of embarkation, and branch out to each of the cranes above described.

When a carriage arrives to be loaded at the cranes, a driver is in readiness with his horse, and he fastens the traces to the hooks in front of the carriage. He drives off, proceeding a little before his horse, in order to turn the little pieces of iron, which form edges for the grooves of the rail-way, at places where two roads, crossing each other, renders it necessary, that the edges of the rail-way should be capable of taking two different directions. The rail-ways lead to the point of embarkation, parallel with the quay, and the carriage which runs in this direction must turn at right angles, in order that it may be embarked on board the vessel which is waiting at the quay to receive it. For this purpose, a circular plate of cast iron is laid down, with edges which appear to be a prolongation of the rail-way. This plate, the centre of which is in the middle of the road, turns on rollers fixed circularly beneath it. It is moreover enclased in a cast iron hoop, and fixed into the ground, to prevent it from inclining either to one side or the other. The driver having brought his carriage to the iron plate, which prolongs the iron rail-way, unfastens the horse, and turns with his hands the iron plate, with the carriage upon it, until the rail-way on the plate is brought in a line with the turn of the road leading to the vessel, perpendicular to the quay.

A strong beam is fixed into the front of the quays. Two beams perpendicular to this, on a line with the grooves of the latter part of the rail-way, are fixed, with strong hinges, in front of the immovable beam. The iron grooves of the rail way are carried along these two beams, which may be either raised or lowered by turning upon the fixed beam. The free extremities of the two beams rest on the edge of a port-hole, at the stern of the vessel that is to be loaded. According as the tide is either high or low, the slope of the beams changes, though the ends still rest on the port-hole.

The vessels employed to convey the blocks of stone have one deck, along which runs two iron rail-ways extending from stem to stern, one on the starboard, and the other on the larboard side. Two similar rail-ways

take the same direction into the bottom of the hold. A horizontal capstan in the middle of the vessel, moved by iron wheel-work, makes the carriage advance from the circular iron-plate, before mentioned, to the deck of the vessel, where the carriages are ranged, so that the front of the one comes in contact with the back of the other.

It will naturally be supposed, that in order to keep the vessels steady during the loading, it is necessary, in depositing the carriages in the hold, to begin by introducing them alternately on the starboard and larboard sides. Thus the vessel is prevented from heeling either on one side or the other, which would render the operations difficult and even dangerous. In this manner sixteen or twenty carriages are put on board each vessel; six or seven on each side of the hold, and two or three on each side of the deck. With one horse for drawing the carriages to the circular iron plates on which they are turned to the point of embarkation, the driver of the horse, and six or eight men for working the capstan and pulleys, a vessel bearing sixty tons is loaded in the space of fifty minutes.

The great works which I have here attempted to describe, the enormous masses of stone which the workmen strike with huge hammers, or precipitate from the summit of the hills; the suspended roads for conveying away the earth; the lines of cranes and their simultaneous machinery; the movement of the carriages; the arrival, loading, and departure of the vessels, present altogether, to an admirer of the great works of art, one of the most imposing spectacles that can be imagined. At certain hours the ringing of a bell announces the explosion of the quarries. The works instantly cease, the workmen retire; all becomes silence and solitude; and this silence is rendered still more imposing by the report of the gun-powder, the breaking of the rocks, the crash occasioned by their fall, and the prolonged echoes. Near the quarries there are several workshops for repairing the tools, carriages, vessels, &c. A little square building serves as an office for the engineer and a few agents, (c) who are sufficient for the direction and completion of an undertaking, the annual expences of which amount to one hundred thousand pounds. The works are entrusted to two contractors; one superintends the transport of the stone, and the other the explosion of the quarries and the construction of the breakwater. The vessels employed in conveying the stone are previously gauged, and each vessel has its burden marked on scales fixed up at the stem and stern. In proportion as the vessel is loaded, the scale descends in the water, and thus the burden is ascertained. This serves for the rule by which all the works are paid. A certain sum is paid for the extraction of every ton of stone, and so much for placing it on board the vessels and conveying it to the breakwater.

The work was commenced in 1812, and the sum of one hundred thousand pounds has been annually expended on it. Five hundred thousand pounds more are wanted, and it is expected, that the structure will be completely finished in 1821. Thus the Plymouth breakwater will cost nine hundred thousand pounds, regularly expended in the course of nine years.

The quantity of stone which had been employed on the 10th Sept. 1816, amounted to nine hundred and forty four thousand five hundred and one tons. Supposing that at the conclusion of the year, the whole should have amounted to a million tons, the work would at that time have cost four hundred thousand pounds, which, at an average, is at the rate of eight shillings for the shipment, transport, and deposit of each ton.

When the vessels arrive at the breakwater, their cables are fastened to buoys parallel with the works, one range within and the other without; they then take the position which is assigned to them. The port-lids are lowered and the port-holes at the stern for loading become the port-holes for unloading. These port-lids turn on strong hinges fixed at the lower end whilst the upper end is fastened by strong chains extending to a post above the prow. When the port-lid is lowered by means of these chains, it becomes horizontal. A tackle is fastened to the hind-part of the carriage which is to be unloaded; it passes over the carriage, runs through a block fixed on the stern, and then winds round the horizontal capstan. The capstan is now put in motion, the carriage ascends from the hold, is drawn along the deck to the port-hole, which it passes. Then the tackle acting vertically on the carriage, and the stone which is now unconfined, falls by its own weight into the sea. This operation being ended, the unloaded carriage is brought back and placed on the clear part of the deck, and another is unloaded in the same manner.—For a burden of sixty tons, for example, the operation occupies only forty minutes, and fifty vessels are employed in conveying the stones.

A crane is used in arranging the enormous blocks of stone, which are laid together systematically from the level of low water to the summit of the Breakwater. This crane, which is formed of two long masts firmly lashed together at the top, and resting on the deck and the side of a vessel at the stern, is very strong and large. It is worked by the horizontal capstan on board the vessel; whilst a smaller capstan acts upon a cable, by which the vessel is made either to approach the Breakwater or to recede from it. I conceive it to be impossible to employ a more simple and advantageous system of mechanism for raising and placing the stones in slightly inclined gradations, which consequently renders it necessary, that the crane on board the ship should project considerably, so that the vessel may not strike against the Breakwater.

Some other little fixed cranes, which present nothing remarkable, are ranged in succession at different points of the Breakwater, for moving and depositing the last pieces of stone.

Such is the rapid sketch of the great works of Plymouth Breakwater. The admiration excited by the contemplation of such an enterprize is increased on consideration of the rapidity, with which it has been completed, and reflects honour at once on the enlightened Government which promoted these immense expences for the attainment of an object so eminently advantageous, to the public and on the industrious individuals who, by the most prompt, ingenious, and yet simple means, have overcome the greatest difficulties.

My friend, Mr. John Rennie, who drew the plan of the Plymouth Breakwater, and who, together with Mr. Whibbey, immediately superintends the works, invented the different methods which have here been explained. Mr. Whibbey, the companion of Captain Cook, is already known for his talents as a mechanist, by an interesting memorial of the methods adopted for raising the frigate *Ambuscade*. To his politeness I am indebted for the explanation, given on the spot, of all the operations which he himself superintends with indefatigable activity.

Comparison of the Breakwaters of Plymouth Sound, and of Civita Vecchia, in a Letter from a Friend.

Being the other day on business at Plymouth, I went to see what every one who visits that port ought not to neglect seeing, that great national work, the Breakwater, under the shelter of which a whole fleet of ships of war, beside many hundred of smaller vessels, may now find safe protection, where heretofore, a gale of wind from the south or south-west brought with it certain destruction to every ship and vessel which might happen to be at anchor in Plymouth Sound.

The length of this enormous dyke or artificial island, when finished, will be just one mile; its perpendicular height varying from 45 to 20 feet, the width of its base from 370 to 250 feet, according to the depth of water, and the width of the top about 60 feet. When I visited it in October 1816, there was about 1300 feet at the top quite finished; that is to say, the Breakwater to this extent was brought up to the high-water mark of spring-tides; at that time the quantity of stone deposited was 1,340,000 tons.

The first stone was thrown down on the 12th of August 1812, the birth day of the Prince Regent; so that, on an average, 223,000 tons have annually been deposited on this great work; and, I understand, if the necessary supplies had been voted by Parliament, it could with ease have been finished long before this. The estimated quantity of stone required for the whole, was two million tons.

The retardation on the work, however, has had its utility, by giving the great stones time to settle, and the rubble stones to work themselves into the crevices, and render the others immovable. For such is the force of the action of the sea upon the side of the dyke opposed to it, that in a violent gale of wind which happened two years ago, a stone of nine tons weight on the top is said to have been carried, by the force of the waves, from the side next the sea, to the opposite slope facing the harbour.

On mentioning this national undertaking to a friend, on my return to Edinburgh, he observed, that the ancients were perfectly well acquainted with the art of making good harbours on the coast of the Mediterranean, by means of artificial dykes or islands, and that the mode pursued by them was very little different from that adopted in Plymouth Sound, though theirs must have been infinitely more difficult and laborious, from the want of machinery to save and expedite human labour; and more particularly from the want of iron railways; and he instanced the insulated mole or Breakwater of *Civita Vecchia*, as described by Pliny to Cornelianus,* which I think you may not be displeased to see, and compare with what I have written regarding the Breakwater of Plymouth Sound. It is as follows:

"I received lately the most exquisite entertainment imaginable at Centumcellæ† (as it is now called,) being summoned thither by Cæsar, to attend him as one of his assessors.—This delightful villa is surrounded by most verdant meadows, and commands a fine view of the sea, which forms itself here into a spacious harbour, in the figure of an amphitheatre. The left hand of this port is defended by exceeding strong works, as they are now actually employed in carrying on the same on the opposite side. An artificial island, which is raising in the mouth of the harbour, will break the force of the waves, and afford a safe passage to the ships, each side. In order for the construction of this wonderful instance of art, stones of a most enormous size are transported hither in a sort of pontoons; and being thrown one upon the other, are fixed by their own weight, gradually accumulating in the manner, as it were, of a sand bank. It already lifts its rocky bank above the ocean, while the waves which beat upon it, being lifted to an immense height, foam with a prodigious noise. To these stones are added piles, which, in time, will give it the appearance of a natural island."

(c) The engineer, his assistants, and all the clerks, amount only to ten individuals.

* Letter 31, Pliny to Cornelianus.
† Supposed to be *Civita Vecchia*.

Political Institutions.

On the Origin, among Rude Nations, of Political Institutions, out of Sentiment and Passion.

In the history of very early nations, we observe a singular concurrence of the Institutions of Policy with the strong natural feelings of men. Both their forms of government, and those laws which regulate individual rights throughout society, bear a character by which we might judge them to owe their birth rather to deep-rooted sentiment, than deliberating and contriving thought; and accordingly, in searching the records of their Institutions, we do not merely discover the frame of polity under which a people chose or submitted to live; but in them we read, as it were, the bosoms of the men themselves, their characters, their affections, and their passions.

I. Kingly government, not elective, but fixed and inviolable, has been, for the most part, it is probable, in its origin an usurpation. It has been the assumption by a single man of domination over a whole people; and how attained? By the force within his single mind, of passions ungovernable and insatiable, giving to Will a preternatural impulse, which permits intellectual power to rest in nothing less than sovereignty; till thousands of spirits were bowed under the ascendancy of one, and natural superiority of mind over these converted into dominion over wealth, liberty, and life.

If we could look upon such an origin only as this, the government, as constituted, would appear to us the wildest and most terrible subversion of all the rights and laws of nature. But we look down through the history of mankind, and we discover, that the form of government which thus arose, was that by which alone the societies of men could be held together. It is that which the wisdom of men would have appointed, if their wisdom could have presided to establish their government, for it is in effect that form which the necessities of their condition demanded. So that, comparing the beginning of monarchies with their result, we find, that here, as elsewhere, the fierce and lawless passions of men, in fulfilling their desire, have fulfilled a more important purpose, which was not their own: and we wonder to see, that even the iron yoke, by which the usurpers of tyrannical sway have subdued under them the strength of a nation, was the very blood by which, in future, their restless, discordant, intestine wills required to be compelled together into peace.

Thus, in the most important single point of all history, namely, the Supreme Government of the communities of human society, we find that which would seem to demand the utmost wisdom, effected by mere sentiments and feelings; and this is one memorable instance how, in looking into early times for the history of political institutions, we find ourselves engaged in examining a picture of the conflicts and triumphs of human passions.

II. To take another which is nearly connected with it. Survey the world, and we find, that one main pillar of the strength of these communities has been the institution of Nobility. If kings have held the people of vast regions in one union, the races of nobility have more than any thing else maintained, unchanging, steadfast, and secure, the frame of political society, through successive generations. But look to the infamy of society for the origin of nobility, and what do we find? Human wisdom! No; the blindness of human imagination; and perhaps the generous blindness of human affection.

The stability, the strength, and the authority of the noble races of barbarous nations, is found chiefly in two causes; first, the reverence of superstition with which the imagination of the people very rapidly invests an illustrious house; and secondly, that legal and devoted zeal with which men bring themselves to hazard in the service of protecting power,—if that power have a hold on their imagination.

If we could pursue this various inquiry, we should find, that in following the line of political investigation, we were brought into the recesses of human feeling. There is scarcely any more interesting part of history than that which regards the nobility of barbarous and half-civilized nations. Witness the clans of Scotland, witness the feudal history of Europe. Without engaging further in the question, it may be sufficient to observe, in proof of what was said of the intimate development of human feeling involved in such inquiry, that a necessary condition of the devotedness of zeal that characterizes the loyalty here spoken of, is, that the service to be rendered should be accompanied with the danger of life; that it is the peril and difficulty of the service that has made its law so deeply binding on the hearts of men. It is plain, then, that the solution must be found deep in nature. When it is further considered, that much of the force of loyalty depends on its transmission from father to son; and as was before observed, that a superstitious reverence, in place of a rational acknowledgment of utility, is requisite to produce its high and noble strength, no more need be said to show in what curious, interesting, and affecting problems of human feeling, the inquirer will be engaged, who attempts to understand this portion of political history. Whether he attempt to understand it or no, he will surely be moved with wonder and affection at the delineation.

III. If we turn from great political institutions to the laws of domestic life, we shall still find, that we are reading the history of men's

nature, not of the science of legislation. The two most important obligations of life to be guarded from violation are the conjugal and filial relations. Among many nations, altogether barbarous, the punishment of the adulteress was death from the husband's hand. Among one tribe of the northern barbarians of Europe, she was scourged half-naked, from village to village, by the women, till she sunk and expired under their strokes. The purity of the unmarried is guarded by the sanctity of marriage. "It is related of Hippocrenes, a citizen of the blood of the kings, that when he discovered a man with his unmarried daughter, he crushed him beneath the wheels of the chariot in which he, with his daughter, rode, whom afterwards he immersed alive." The nations who visited with such dreadful retribution the stain of chastity, were rearing up a moral strength among themselves of immeasurable importance and power; but they knew not the work in which they were labouring; they only felt, with intensity and depth of which we have no longer a conception, the holiness of woman's purity; and they leaped up in madness to revenge its violation.

IV. Of the reverence with which the filial relations has been guarded, we have an admirable example among the early Romans. They gave to the father the power of life and death over his children. The institution seems dreadful to us, who have no understanding of the force with which the great laws of nature are felt by men in the primitive conditions of society. We judge unjustly, if we perceive in that law nothing but the inhumanity of a barbarous people. The Romans were not murderers of their children, but the authority of a father over his child appeared to them one of those great inherent rights with which no other authority may interfere; and the liberty given to sell into slavery, and to put to death, was with them not the constituting of a barbarous privilege, but the recognition of a natural ungainsayable right;—a nobler conception, and a policy wiser in the truth of nature, than that of the Spartan lawgiver, who attributed to the state a paramount property in the children of its members, and broke up the relation of parents and children to build upon its ruins an unlimited, but a false and unnatural sovereignty of the country. The Spartan did indeed build up his invincible state. But the state of Rome was yet more glorious and more heroic, upheld for ages the sanctity of its domestic manners, and has left a memory to the world, in which the shadow of departed power appears yet more awful in the majesty of moral greatness.

V. If we would see the minds of them in their laws, let us not compare with this severe sanction of the great obligatory affections of nature, the penalties by which some rude nations, of most distinguished character, have protected life. The visitation of public justice on the head of the shedder of blood, was, among all the German nations, a pecuniary fine to the kindred: among that heroic people, the act of homicide was regarded merely as an outrage to the family, which might be compensated by acknowledgement. A wound which maimed—a blow—a word of scorn—had each its similar punishment. Each was an outrage demanding, but also admitting compensation. The greater outrage had only its proportionate amercement. Among most nations a different law has prevailed. The retribution for blood has been blood. Nature seems to us to require this satisfaction. But we cannot the less wonder at that lofty and fearless character of mind which could look in altogether a different light upon the act of death, and which in some sort lifted the men above the law of our common nature.

How are we changed from our ancestors! we who requite the dishonour of the marriage-bed by money; and guard the pettiest interests of our property with the blood of man.

VI. The origin, among rude nations, of Political Institutions, out of sentiment and passion, may be illustrated in quite another kind. We can hardly conceive any thing more remote from government and law than the art of Poetry. Yet we find, among some nations of remarkable manners, the office of the poet having the name, and the national importance of political institutions. Such were the Sennachies, the scalds, the bards. Not without reason: when not only the national renown was committed to their care, who recorded all high deeds and virtues in their songs; but the national character and valour itself was, in part, dependant on their skill, who kindled or sustained the lofty spirit of the people by the fervour of their inspiration.

VII. The illustration might be carried far with little difficulty. But it is much more interesting to pursue it in the volume itself of history. One observation suggests itself on considering such specimens as these, that there seems to be some sort of energy or power of human nature operative in such ages, which is not known to times like ours. Advancing civilization seems to subdue and almost extinguish in men's minds those great and prominent passions which in their earlier condition govern the courses of life, and even the establishment of society. It raises up above all the other powers of our nature, the power of intellect. In the rudest as in the most enlightened time, opinion is the mistress of life. But in those simple or barbarous ages, opinion is the offspring of sentiment and passion; under the influence of civilization, it will consent to acknowledge no parent but reason. The student of history may be often inclined to question the grounds of this change; and may, perhaps, hold himself justified in ascribing this part to the pride, and not altogether to the wisdom of philosophy.

State of Greece.

Remarks on the Present State of Civilization in Modern Greece.—By a distinguished Native of that Country.

If the state of a nation may at all times be contemplated with utility, it must be so in a more peculiar manner at the epoch when its members begin to degenerate from the virtues of their ancestors, and also at the epoch in which they begin to be regenerated. At these two periods, the observer has the vantage ground of a point of view which is admirably adapted for giving him lessons useful to humanity, because it lays before his eyes the course and tenor of those causes which mainly injure or mainly favour the civilization of mankind.

These causes must vary in number and in efficacy, according as the people among which such a revolution goes on happen to be more or less distant from other civilized nations, more or less favoured by climate, more or less advanced in the civilization which it is about to lose, or more or less deeply plunged in that barbarism from which it is about to make its escape. To these considerations, which must of course guide the eye of the observer, should be added a particular study of the peculiar species of barbarism which forms the object of his observation. The same instruments of improvement do not operate with the same kind of force among a people who are for the first time treading the path of civilization, as among a people who are in the act of recovering it, after having strayed from it for a season. The steps of the former are timid; they feel the way before them like infants. The progress of the latter, provided they have preserved any monuments of their ancient civilization, and provided their march be not impeded by any causes out of themselves, may be expected to be more decided and more rapid in its character.

It would be an idle and thankless task to set about informing a man of education, what Greece once was, or what she has successively become in the course of the revolutions to which she has been exposed. The last of these revolutions had plunged her into a state of lethargy, not unlike that which pervaded western Europe before the revival of letters. From time to time, only, she manifested a few faint symptoms of life; from time to time, she produced a few cultivated men in the midst of a barbarous nation, a nation which indeed paid them a tribute of excessive admiration, but which, deaf to their voice, and blind to their example, derived no effectual advantage from their presence.

No one will think it necessary to ask us, of what kind, during this melancholy period, had been the moral and religious ideas of the Greeks. Ignorance, the offspring of tyranny, is ever attended by superstition; and the influence of superstition is followed surely, although insensibly, by the corruption of manners.

Nevertheless it is true, that European travellers, some of them, indeed, persons who have never seen Greece, and who think it quite possible to study a nation without leaving one's own cabinet, while professing to give a fair picture of the degeneration of Modern Greece, have in reality produced nothing but a caricature. They have persuaded themselves that there is nothing to be seen among the Greeks but that which may at all times be found among all enslaved people, and which indeed may be seen at this very day among many nations governed by no means in so arbitrary a manner as the Greeks. By a calculation, wherein no justice is rendered either to the acuteness of their understanding, or to the rectitude of their hearts, those observers have in fact been heaping upon the heads of the present Greeks, the vices and the errors of all the generations which have gone before them since the age in which Greece lost her liberty. They have not seen, or they have not been willing to see, that the Greeks of this day are in truth the victims of crimes which they never committed. The situation of nations arrived at their condition, resembles that of individuals sprung from parents enervated and exhausted by debauch. The only reproach which can with justice be brought against them is, that they have not adopted with sufficient decision the regimen and mode of life most opposite to that in which their parents indulged, and therefore most likely to eradicate the debility entailed upon them. A much greater proportion of guilt is chargeable on those Greeks who first permitted themselves to be seduced by the gold of the Macedonians, who, forgetting the brilliant examples of virtue and patriotism bequeathed to them by their ancestors, and refusing to respect the voices of those whose tombs were yet before their eyes, were mean enough to sell their heritage of liberty, and upon those who were the enemies of the Achaian league, and upon those who, by their wicked dissensions, introduced the arms and the oppression of the Romans, and upon those, finally, who, while yet in possession of at least a shadow of liberty, tamely submitted to the yoke of a barbarous people: upon all those Greeks a much deeper weight of censure should fall, than on these their unhappy descendants to whom they have left every thing to be repaired, and scarcely one new fault to be committed. Without liberty, without pecuniary resources, without the resources which light and intelligence alone can supply, abandoned by all the world, exciting among a few of the nations which contemplate them some insignificant feeling of interest, or some barren feeling of pity, but regarded by the greater part with perfect indifference, where was ever people placed in a more helpless situation than the Modern Greeks?

And what, accordingly, was the spectacle presented by unhappy Greece, that native country of arts, sciences, and philosophy? The same that may be found almost every where among slaves. A clergy superstitious and ignorant, influencing as they please a people still more ignorant; a gentry of much pretension, nourished by the sweat of the peasantry, but far more contemptible than them, because more exposed to the attacks of the common despotism, and more skilled in the arts of debasing themselves before its ministers; fathers of families too much exhausted by vexations, and too much blinded by superstition to think of bestowing a good education on their children; a youth, in consequence of all these things, utterly devoid of intelligence. Now and then, indeed, a young man expatriated himself for a time, and came to gather, in Western Europe, information which he could not find at home; but his whole ambition was confined to the study of medicine; and Italy, the common scene of his studies, was to the modern Greek, what the pillars of Hercules were to the ancient. These young men, moreover, travelled rather that they might learn a trade, than that they might acquire a science (at a time indeed when medicine, even in Europe, was merely a trade,) and therefore they carried back into their unhappy country little more than instruments to do mischief, and presumption to prevent them from repairing it. At times, it is true, the study of theology was added to that of medicine; and persons in possession of this double accomplishment, composed works of controversy well fitted to keep up the hatred subsisting between the Greek and the Roman churches, but utterly hostile to that spirit of conciliation and forbearance, which is the true character of the religion of the Bible.

The information of the more cultivated was, in general, limited to these studies. The rest were scarcely able to read and write; and this part of the nation, without all doubt, the most ignorant, was nevertheless, by no means, either the most superstitious or the most depraved. This advantage was probably the fruit of their ignorance itself, which, at least, prevented them from reading bad books. They derived all their books from Venice, and, with the exception of these necessary for the performance of religious service, and the few grammars and lexicons used in the seminaries where the ancient Greek language was taught, these books were, in general, the most stupid of all productions, much better fitted to deepen than to dispel the shade of ignorance. It was only to a happy accident that the Greeks owed the possession of a translation of *Telemachus*, and another of *Rollin's Ancient History*, two books, which, as we shall observe in the sequel, have been far from being useless to the Greeks.

The nation continued plunged in this deplorable condition down till after the middle of the last century; but in spite of the thickness of their darkness, the attentive observer could not fail to discern, now and then, passing gleams of light, which indicated the approach of a dawn. On the one hand, the few colleges where the ancient language was taught, in spite of the discouraging imperfection of the methods of instruction—in spite of the ignorance and conceit of the professors—and the consequently small advantage derived by the pupils,—were yet sufficient to keep alive, in the midst of the nation, some knowledge of the language of their ancestors, like a sacred spark one day destined to be blown into a flame. On the other hand, a national vanity, ridiculous enough in itself, but salutary in its effects, rendered the Greeks, in general, as proud of their descent, as if each man could have traced himself, in a right line, to *Miltiades* or *Themistocles*. This vanity, joined to the difference of religion and of manners, and to the unworthy and impolitic treatment which they received from the conquerors, was sufficient to make a great part of the nation look upon themselves as prisoners of war, rather than as slaves; and, on the whole, it was not difficult, as we have already said, to observe, that the concurrence of a few favorable circumstances was all that was necessary to bring about a new order of affairs.

It is sufficiently remarkable that one of these circumstances was precisely the arrival of that ever memorable epoch, when the spirit of the more enlightened part of Europe, weary of systems, and that scholastic method of teaching the sciences, which had not yet been entirely abandoned, began, at last, to feel the necessity of opening to itself a new path, and of following therein no other guide than the faithful and scrupulous examination of facts. That happy discovery soon conducted the Europeans to another no less important,—viz. to that of regarding all departments of human knowledge, not as things isolated from each other, but as different branches of the same tree, different apartments of the same edifice, no one of which, therefore, could be thoroughly understood, unless it was viewed in its connexion with the rest. The light which sprung from this great literary revolution failed not, like physical light, to penetrate and illuminate wherever it was not opposed. That it had many obstacles to encounter in Greece, we have already seen, but we have also seen, that the effect of these was considerably weakened by the sentiments cherished in secret among a great proportion of the nation. The Greeks, so vain of their origin, instead of shutting their eyes against the light of Europe, were proud to regard these western people as creditors about to repay, with large accumulation of interest, a capital borrowed originally from their own ancestors of old.

In the year 1760 there appeared, for the first time in Greece, a system of experimental physics, accompanied with plates, and a logic. These works, written in ancient Greek, and published at Leipzig by two respec-

table Greek ecclesiastics, were as well executed as the abilities and learning of their authors might permit. The author of the logic published shortly after a translation of the mathematics of Segnett, and a version in modern Greek of a little book, attributed to Voltaire, and entitled, *Essai historique sur les dissensions des Eglises de Pologne*. This was the same ecclesiastic who gave us afterwards in 1786 and 1791, his translations in Greek verse of the *Georgics* and the *Æneid* of Virgil. This last production, the notes to which, attest abundantly the industry, zeal, and erudition of the translator, might have had great success as a mere literary work, had it been at all possible to transpose the beauties of one dead language into another; but it, at all events, should be saved from oblivion by the impartial observer, because it forms one of the most characteristic symptoms of the present fermentation in the spirit of Greece, and because it announces, that the happy revolution which is in its progress in that country, has taken such a direction as nothing can any longer impede. And yet, it was only in the year 1788, that is to say exactly two years after the publication of the *Georgics*, that De Pauw, in his *Recherches philosophiques sur les Grecs*, declared, in the face of all Europe, with the tone and confidence of an inspired seer, that ignorance and superstition had infixed themselves so deeply and so firmly in the minds of the Greeks, that no human force or power ever could extirpate them. Had he taken the trouble to inform himself of the actual state of the Greeks, and to reason like a philosopher, (as he had been pleased to promise in the pompous title of his book,) this man would have seen and concluded, that when a translation of Virgil appears among a people almost in a state of barbarism, it is a sure evidence, that the spirits of that people are in a state of fermentation.

But let us come back to the epoch when Greece first received treatises on natural philosophy and logic, (written after the manner of the enlightened nations of Europe. Here we are presented with such a connected chain of causes and effects, such a concurrence of varied and yet co-operating circumstances, that it is altogether impossible to assign to each its due rank in the order of events, or to appreciate with exactness the influence which each of them may have had on the moral revolution which is at present going on among the Greeks. Perhaps the attempt to do so would, at the best, be an useless and unphilosophical one, since, among no people of the world, was any revolution, either moral or political, brought about in a regular manner by the operation of isolated causes. It is sufficient, if we indicate in their natural order, the most considerable of those occurrences which we regard as having brought about the present state of things in Greece.

In the colleges of Greece, attached for ages to the philosophy of Aristotle, (or rather, we should say, to the dreams of his commentators) with the same devoted superstition which had changed among them the nature of the most simple of religions,—in these colleges a very great proportion of the professors regarded the appearance of the new books above mentioned as an useless and absurd innovation. The students, on the contrary, considered it as a curious circumstance, concerning which one ought at least to be prepared to say something. The curiosity of the young men, although sufficiently rewarded by the acquisition of the new logic, would perhaps have remained useless to the nation, had the Greeks continued to be still as poor as formerly, and to vegetate in the same discouraging condition which had been the deplorable fruit of their oppression. The first concern of man is, at all times, to make sure of his means of subsistence; and as these means are curtailed in proportion to the political oppression under which we live, to overcome the difficulties of his situation, is, in general, a sufficient occupation of intellect for one existing under a brutal despotism. It is only after having provided for the necessities of nature, by rendering the means of subsistence less precarious, that men begin to cast their eyes about them, and seek to enlarge the sphere of their intelligence. Such, in all ages and countries, has been the march of the human spirit, and such it has been and is among the Greeks. At the epoch of which we speak, the Greeks were not indeed free, nor by any means so rich as the inhabitants of a country so remarkable for the variety and abundance of its productions should have been. They are far, very far indeed, from being so, even at present; but two remarkable occurrences have contributed to render them less poor than heretofore, and inspire their minds, so long sunk in consternation, if not with the courage of ease and liberty, at least with that of hope. They have learned, in a word, to perceive both the true cause of their misfortune, and the possibility of putting an end to their unhappy effects.

In consequence of a new direction given by many concurring circumstances to the channels of commerce, a few Greek houses found themselves almost of a sudden in possession of extraordinary riches; and we heard for the first time the name of a *million* among a people who had been accustomed to consider the few of their number who possessed a capital of a hundred purses,* as the chosen favorites of fortune. These new-made rich people, although as yet, unfortunately, riches were their only possession, soon began to feel that if fortune scatters her bounty blindly, one must have eyes, and piercing eyes too, in order to preserve and increase her gifts. Accustomed heretofore to make use of European clerks in the management of their concerns, they began to think that they could do without these, and they have in fact in a great measure replaced them

by youths of their own nation, forced and bribed to educate themselves by the temptation of considerable salaries.

The study of the languages of the countries with which they had commercial transactions, gave these persons some tincture of learning and the belles-lettres; and without being aware of it, they went through a course of logic in learning arithmetic, and that beautiful art of book-keeping, which furnishes the mind with the means of discovering truth, by enabling it at all times to trace error to its source. But in learning the language of strangers, our young Greeks very soon perceived how much they might facilitate their labour by an accurate study of their own language in the first place, and then by going to learn the foreign dialects in the countries where they are spoken. The desire of knowledge and of travelling, thus began to occupy the minds of our youth, and their ambition was seconded by the wish, wherewith the possession of great riches naturally filled the possessors, of extending their own commerce by foreign establishments on the one hand, and on the other, of multiplying the means of information, if it were only for the sake of their own children. In a short time the capitalists have formed new commercial houses on the coasts of Italy, in Holland, and in different parts of Germany. It was thus, that commerce, by diffusing ease of circumstances amongst the nation, rescued a multitude of young Greeks from sloth and indolence, and scattered them over the face of Europe, while at the same time, those who remained at home were furnished with better means of instruction by the multiplication of colleges and schools. The emulation which necessarily sprung out of the new state of things, determined many young men, after completing their course in some Greek college, to go and seek the opportunity of completing their education in the western states of Europe. Not a few, even of those destined originally for commerce, have been known to desert their counters for the purpose of shutting themselves up in some university. Such have been the results of the increase of wealth amongst the Greeks; but nothing so much contributed at that epoch to excite emulation, to augment the fermentation of spirits, and to inspire with resolution the minds of the Greeks, as one remarkable event of which we are now about to speak.

It was in the year 1769, that Russia declared war against Turkey. This last power, although for a long time much declined from that ferocious energy, which had once rendered her as formidable to the European states, as terrible to her own dependencies, still preserved an appearance of grandeur which caused her to be viewed with respect. By means of a kind of *prestige*, the existence of which it is not easy to reconcile with the progress of intelligence, above all, with the wonderful improvements in the tactics of Europe, the European nations still imagined Turkey to be the same mighty power whose heroes had chased the Venetians from Candia and the Peloponnesus, and penetrating into the heart of Germany, dared to besiege, and almost succeeded in taking, the capital of the Empire. Russia has for ever dissipated this superstition, and demonstrated to all Europe, that that immense volume of power which she regarded as the muscular bulk of a vigorous constitution, is, in truth, only an unwieldy dross, which must, sooner or later, conduct the Ottoman empire to its destruction. But the effects of this glorious war were by no means confined to undeceiving the European nations. Russia, anxious at that time to gain the favour of a nation which she hoped one day to reckon among her subjects, employed a few Greeks in her war with the Porte, and attached them to herself by honours and rewards of every kind. These new auxiliaries embraced, with a youthful ardour, the cause of the court of St. Petersburg, and the success of its armies was indeed, on different grounds, the object of the wishes and prayers of their whole nation. Some thought of nothing but revenging themselves on their oppressors; to others the cause of Russia appeared to be the same with that of religion, and in the Russians they saw with pious satisfaction, the future restorers of their ruined or polluted temples. A third party (and these were those men of true good sense, of whom so few can be found in any country, or indeed in any age) looked upon the Russians in no other light than that of a nation destined to prepare the Greeks for liberty. In the meantime, in consequence of the peace concluded between the belligerent powers, the Greeks were again obliged to submit themselves to their ancient yoke; but they did so with sentiments very different from those which they had entertained before quitting it. Persuaded thenceforth, that their oppressors were men who could be beaten, nay, knowing that they themselves had beaten them by the side of the Muscovites, and thinking it by no means impossible that, under the guidance of able commanders, they might beat them alone—they felt within them, for the first time, the sparks of a pride, which has been prevented from some fearful explosion only, by the unexampled moderation with which, from this time, the Turks began to conduct themselves. For the Turks became humble and discouraged exactly in proportion as the Greeks plucked up spirit, in so much, that they felt themselves absolutely compelled to treat, with an appearance of respect, those whom hitherto they had regarded as mere beasts of burden. Other circumstances combined to sink their spirits. The Russian consuls, under the influence of the most glorious peace which the empress had just concluded with the Porte, exerted a species of dictatorial authority all over the Levant. More than once they rescued Greeks from the vengeance of the government, on pretence that they had become Russian subjects, or had served with the armies of Catharine.

On the other hand, the bashaws and governors of provinces, who, under the sway of religious fanaticism, had hitherto been accustomed to re-

* Somewhat about four thousand pounds sterling.

ceive the edicts of the Porte as so many decrees of Heaven, began to perceive, in consequence of the very war in which they had been engaged, that the statue which they adored, rested only upon feet of clay. They now began to receive the orders of their emperor with haughtiness, and with the air of being partners, rather than subjects, of his throne. Not a few of these bashaws even lifted the standard of rebellion, and there are several, at this moment, over whom the Porte retains no more than a shadowy and precarious species of superiority. This disobedience, another result of the same cause which had inspired the Greeks with courage and confidence, has contributed, in a collateral manner, to fortify and perpetuate these sentiments in their bosoms.

The inhabitants of the Archipelago carried on all their commerce, previous to this time, in vessels of very inconsiderable size; chiefly accustomed to the petty traffic between one island and another, the utmost extent of their voyages never beyond the Black Sea of Egypt. But at this epoch, the new direction of commerce, of which we have already spoken, the new riches diffused among the nation, and not improbably the diminution in the authority of the government, suggested to some persons of superior consequence, the idea of building large merchant ships, in imitation of the western Europeans. The first vessels of the new construction produced a striking effect on all eyes, excepting those of the government. Whether from ignorance, or from disdain, or, in fine, from the necessity and the convenience of seeking, among the Greeks, those sailors for the Turkish ships of war, which it could not find among its own nation, the Porte, although by nature abundantly suspicious, paid no attention whatever to this infant marine of the Greeks. Nay more, it is said, that this marine was in some measure favored by the government at its commencement,—one of those unintelligible blunders which we should never be astonished to meet with, in the annals of despotism. Most certainly had the Turkish rulers been able to foresee, that the Greeks would one day come to possess a mercantile fleet of several hundred vessels, the greater part of them furnished with ordnance, they would have stifled this dangerous marine at its birth. At present they are prevented from checking its ultimate progress by the very assistance which they have derived from it in their own fleets; for the ignorance of their nation in regard to all marine affairs, is quite as profound, as if their seat were still in the heart of Asia, many hundred leagues distant from the coast.

It is impossible to calculate all the effects which the establishment of this marine may produce in the sequel, or to foresee what influence it may hereafter exert over the destinies, either of the oppressed or of the oppressing nation. It is more easy to observe what it has already effected. In the first place, by favouring the commerce of the Greeks, and increasing their pecuniary resources, this marine powerfully assisted in the increase of the means of instruction. The islanders who were formerly in common, the most ignorant part of the whole nation, begin to feel the necessity and the advantage of education, and rival each other in the devotion of their means for the erection of schools and colleges. On the other hand, by the happy influence which this marine has had on the mind of the government, whose despotism it has in a certain degree mitigated, the islanders have acquired and communicated to the rest of the nation an energy of soul unknown among Greeks since the time when their country lost its freedom. Masters of a great number of excellent vessels, framed by their own hands, in a manner at once solid and elegant, and manned in general by mariners who have among themselves ties of union arising from blood or marriage; these men upon the slightest suspicion of any extraordinary oppression, can embark the rest of their families, and place themselves under the protection of the first nation wise enough to appreciate their value.

The revolution which is at this moment in the course of its operation among the Greeks, has necessarily produced effects diversified and modified according as it has had to encounter, in particular instances, more or less of barbarism, of resources, or of passions,—in a word, according to the different circumstances in which it has found the different towns or communities of the country. In the more considerable towns, which, even before the revolution, possessed some wealthy individuals, some colleges, and consequently some individuals who could at least read and understand the ancient writers,—the revolution has, as might have been expected, operated the earliest and the most effectually. Already, in some of these towns, the buildings of the colleges begin to be enlarged, and instruction in the modern languages, and even in the sciences taught in Europe, is added to the ancient language of the country. The rich have books printed, translated from the Italian, the French, the German, and the English; they send, at their own expense, young men of superior acquirements and zeal to study in Europe; they give a much better education to their own children, without excepting those of that sex which had been hitherto excluded from all education whatever. They wait only for the return of those many young persons who are this moment scattered over Germany, France, Italy, and England, in order to establish new colleges wherever local situation and other circumstances may permit. The love of instruction has been propagated, and diffused all the rapid symptoms of a contagion, if we may make use of such an expression; and what affords of all other things the best augury for the future, this infection has reached the Greek clergy. Philosophy has forced the gates of the sanctuary, or rather she has descended thither, and now she comes forth from thence, accompanied with a pure and enlightened religion, to instruct and purify the nation. A considerable number of the Greek ecclesiastics, far from opposing

the instruction of the nation, are only occupied with the desire of instructing themselves. Germany possesses, at this moment, a great number occupied perpetually in translating excellent works into Greek. These respectable ecclesiastics have well perceived, that true piety is enlightened piety, and that true intelligence, far from being the enemy of religion, only prepares for her a better reception in the hearts of men. They have felt, that the gratitude of a nation for services such as they are actually conferring, is a very different thing from the blind incense which of old was lavished upon them by its superstition. We are the more delighted with an opportunity of doing justice to the Greek clergy, because in general they lie under the reproach of having most of all contributed to the degradation of this people. No—that reproach falls no longer with justice on any thing but a very small portion of the clergy, whose leaders weight will not, we hope, continue long to oppress either the sanctuary to which they never did honour, or the nation which is now too wise to honour them.

In short, such is the progress of the moral revolution of Greece, that the Greeks can no longer retrograde: they must go on. We may say more than even this; there exists at this moment in Greece such a number of educated men, that were it possible for western Europe to fall once again into darkness, Greece might once again have the privilege and the honour of restoring her to light. A single glance at the catalogues of the books translated within these few years into modern Greek, is sufficient to convince the impartial observer, that the literary men of Greece, at the present time, are much more numerous; and much more enlightened, than those which she produced in the fifteenth century—those ever-memorable men, who, flying from a country prepared by native despots for a foreign yoke, took refuge in the west of Europe, and repaid the asylum afforded to them, by communicating the small remains of ancient knowledge which still remained in their possession.

The Greeks are extending their attention to their modern language as well as to their ancient. This idiom, sprung from that used by the great writers of antiquity, in the same manner as the French and Italian are from the Latin, possesses over these last, the advantage of being rather less different from its original than they are from theirs. Notwithstanding, however, of this circumstance, the modern Greek as a new language, may be considered at this moment in somewhat the same stage of progress in which the French language was at the time of Montaigne. The men of education, who heretofore entirely neglected and despised this dialect, have of late been obliged to employ it in order to introduce foreign books to the acquaintance of the people, and in doing so, they have necessarily been led to study its nature with more accuracy—to examine both what it does possess, and what improvements it is capable of receiving. Already this language, like every thing else in Greece, is in a state of revolution. Cultivated as it is by so many pens at the same moment, it is not easy to foresee where it will stop, or what its fixed and characteristic nature will be. If one may judge from its infancy, it affords the promise of uniting more good qualities than are easily to be found together elsewhere. As among the books translated into it, a large proportion are connected with the exact sciences, it may be presumed that one of these good qualities will be clearness. It still preserves many of the turns and inversions of the ancient language; but these, it is to be hoped, instead of banishing as obstacles of perspicuity, they will endeavour as much as possible to reconcile and combine with that first of all qualities. In short, we would hope, that from this combination of elements, there may result a language wherein the flowers of imagination shall only serve as a graceful ornament to the mature fruits of reason.

Such is the present state of civilization in Greece.

C—Y.

TO CORRESPONDENTS.

The Letters of Manetho, on General Research;—of Zeno, on the Library Society;—of Nauticus, on the present state of the Port of Calcutta;—of a Staff Officer, on the Bengal Military Fund;—of an Amateur, on the Sostemans;—and several other interesting Communications, are received, and will appear in the just order of their claims. To our Correspondents generally, we cannot sufficiently express our gratitude for their continued preference of our columns, which it is our anxious wish to render worthy the distinction thus conferred on them.

SACRED POEMS.

Some of our Friends in the interior, who have repeatedly expressed their approbation of our putting them in possession of short popular Poems, through the medium of this Journal, as Books of every description are so difficult to be had in the Country, have more particularly thanked us for giving to them the Series of Moore's Sacred Songs, in the Poetic Department of our Sunday Numbers, which we completed some time ago;—and have suggested to us the following these up, by Lord Byron's Hebrew Melodies, the Series of which we have commenced to-day, and shall be able to complete in about two Numbers more, by which means, this fine Collection of Sacred Pieces, will be placed within their reach without expence, and form an appropriate ornament to a Publication of such a Day, without occupying more space than might willingly be yielded by readers of all tastes to subjects of this description, touched by so masterly a hand.

Lord Byron's Hebrew Melodies.

SHE WALKS IN BEAUTY.

I.

She walks in beauty, like the night
Of cloudless climes and starry skies;
And all that's best of dark and bright
Meet in her aspect and her eyes:
Thus mellow'd to that tender light
Which heaven to gaudy day denies.

II.

One shade the more, one ray the less,
Had half impair'd the nameless grace
Which waves in every raven tress,
Or softly lightens o'er her face;
Where thoughts serenely sweet express
How pure, how dear their dwelling place.

III.

And on that cheek, and o'er that brow,
So soft, so calm, yet eloquent,
The smiles that win, the tints that glow,
But tell of days in goodness spent,
A mind at peace with all below,
A heart whose love is innocent!

THE HARP THE MONARCH MINSTREL SWEPT.

I.

The harp the monarch minstrel swept,
The King of men, the loved of Heaven,
Which Music hallowed while she wept
O'er tones her heart of hearts had given,
Redoubled be her tears, its chords are riven!
It softened men of iron mould,
It gave them virtues not their own;
No ear so dull, no soul so cold,
That felt not, fired not to the tone,
Till David's Lyre grew mightier than his throne!

II.

It told the triumphs of our King,
It wafted glory to our God;
It made our gladdened vallies ring,
The cedars bow, the mountains nod;
Its sounds aspired to Heaven and there abode!
Since then, though heard on earth no more,
Devotion, and her daughter Love,
Still bid the bursting spirit soar
To sounds that seem as from above,
In dreams that day's broad light can not remove.

JEPHTHA'S DAUGHTER.

I.

Since our Country, our God—Oh, my Sire!
Demand that thy Daughter expire;
Since thy triumph was bought by thy vow—
Strike the bosom that's bared for thee now!

II.

And the voice of my mourning is o'er,
And the mountains behold me no more:
If the hand that I love lay me low,
There cannot be pain in the blow!

III.

And of this, oh, my Father! be sure—
That the blood of thy child is as pure
As the blessing I beg ere it flow,
And the last thought that soothes me below.

IV.

Though the virgins of Salem lament,
Be the judge and the hero unbent!
I have won the great battle for thee,
And my Father and Country are free!

V.

When this blood of thy giving hath gush'd,
When the voice that thou lovest is hush'd,
Let my memory still be thy pride,
And forget not I smiled as I died!

IF THAT HIGH WORLD.

I.

If that high world, which lies beyond
Our own, surviving Love endears;
If there the cherish'd heart be fond,
The eye the same, except in tears—
How welcome those untrodden spheres!
How sweet this very hour to die!
To soar from earth and find all fears
Lost in thy light—Eternity!

II.

It must be so: 'tis not for self
That we so tremble on the brink;
And striving to o'erleap the gulph,
Yet cling to Being's severing link.
Oh! in that future let us think
To hold each heart the heart that shares,
With them the immortal waters drink,
And soul in soul grow deathless theirs!

OH! WEEP FOR THOSE.

I.

Oh! weep for those that wept by Babel's stream,
Whose shrines are desolate, whose land a dream;
Weep for the harp of Judah's broken shell;
Mourn—where their God hath dwelt the Godless dwell!

II.

And where shall Israel have her bleeding feet?
And when shall Zion's songs again seem sweet?
And Judah's melody once more rejoice
The hearts that leap'd before its heavenly voice?

III.

Tribes of the wandering foot and weary breast,
How shall ye flee away and be at rest!
The wild-dove hath her nest, the fox his cave,
Mankind their Country—Israel but the grave!

ON JORDAN'S BANKS.

I.

On Jordan's banks the Arabs' camels stray,
On Sion's hill the false One's votaries pray,
The Baal-adorer bows on Sinai's steep.—
Yet there—even there—Oh God! thy thunders sleep;

II.

There—where thy finger scorched the tablet stone!
There—where thy shadow to thy people shone!
Thy glory shrouded in its garb of fire!
Thyself—none living see and not expire!

III.

Oh! in the lightning let thy glance appear!
Sweep from his shiver'd hand the oppressor's spear:
How long by tyrants shall thy land be trod?
How long thy temple worshipless, Oh God!

OH! SNATCHED AWAY IN BEAUTY'S BLOOM.

I.

Oh! snatched away in beauty's bloom,
On thee shall press no ponderous tomb;
But on thy turf shall roses rear
Their leaves, the earliest of the year;
And the wild cypress wave in tender gloom;

II.

And oft by yon blue gushing stream
Shall sorrow lean her drooping head,
And feed deep thought with many a dream,
And lingering pause and lightly tread;
Fond wretch! as if her step disturb'd the dead!

III.

Away! we know that tears are vain,
That death nor heeds nor hears distress:
Will this unteach us to complain?
Or make one mourner weep the less?
And thou—who tell'st me to forget,
Thy looks are wan, thine eyes are wet;